

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims:

LISTING OF CLAIMS

1. (Currently Amended) A medical navigation system for controlling the distal end of an elongate flexible medical device in a subject's body, the system comprising:

an elongate flexible medical device having on its distal end portion one or more magnetically responsive elements that respond to an externally applied magnetic field to change the direction of the distal end of the medical device, and ~~[[together with]]~~ an electronic identification device that includes information on the physical and geometric properties of the elongate medical device including the number of magnetically responsive elements and spacing therebetween, and identification information that provides for elongate flexible medical device identification;

a navigation device configured to create a magnetic field used to steer the elongate flexible medical device, and to determine, as a function of the physical and geometric properties, actuation control variables for an applied actuation consisting essentially of an external magnetic field, where the navigation device determines and applies an appropriate magnetic field direction for actuating the distal end of an elongate flexible medical device and thereby changing its orientation;

an electronic interface for selectively operating the navigation device for selectively controlling the orientation of the distal end of the elongate flexible medical device, the electronic interface comprising a processor and at least one software program that enables navigation control only in the presence of the electronic identification device, wherein the interface provides actuation instructions to the navigation device for controlling the distal end of the device, which instructions take into account the physical and geometric properties of the elongate medical device, including the number of magnetically responsive elements and spacing therebetween, that were obtained from the electronic identification device.

2. (Original) The medical navigation system according to claim 1 wherein the electronic identification device includes a memory, and wherein the interface includes a reader for reading the memory.

3. (Original) The medical navigation system according to claim 1 wherein the electronic identification device includes a memory unit and a processing unit that communicates with the interface for transferring information.

4. (Original) The medical navigation system according to claim 2 wherein the memory contains unique identifying information about the type of device, and wherein the interface includes a database of the unique identifying information of the type of devices with which the interface is intended to operate.

5. (Original) The medical navigation system according to claim 3 wherein the memory contains unique identifying information about the type of device, and wherein the interface includes a database of the unique identifying information of the type of devices with which the interface is intended to operate.

6. (Original) The medical navigation system according to claim 1 wherein the electronic identification device is a circuit that is connected to the interface.

7. (Cancelled)

8. (Original) The medical navigation system according to claim 2 wherein the memory contains unique identifying information about the device, and wherein the interface includes a database of the unique identifying information for devices with which the interface is intended to operate.

9. (Original) The medical navigation system according to claim 3 wherein the memory contains unique identifying information about the device, and wherein the interface includes a database of the unique identifying information for devices with which the interface is intended to operate.

10. (Original) The medical navigation system according to claim 1 wherein the electronic identification device is a RF circuit that transmits a signal to the interface.

11. (Original) The medical navigation system according to claim 1 wherein the interface includes a plurality of programs, each adapted for use with a different type of

elongate flexible medical device, each program operating only when an electronic identification device for the particular type of elongate flexible medical device is present.

12. (Original) The medical navigation system according to claim 1 wherein the electronic identification device includes an integrated circuit.

13. (Original) The medical navigation system according to claim 1 wherein the interface operates on the electronic identification device to prevent reuse of the elongate flexible medical device.

14. (Original) The medical navigation system according to claim 1 wherein the interface tracks elapsed time of use of the identified elongate flexible medical device and invalidates use of the identified elongate flexible medical device when the elapsed time exceeds a pre-defined limit.

15. (Original) The electronic identification device according to claim 3 wherein the processing unit operates on the memory unit to prevent reuse of the elongate flexible medical device.

16. (Original) The medical navigation system according to claim 1 wherein the electronic identification device includes memory, and wherein the interface adds to or deletes information stored on the memory to prevent reuse of the device.

17. (Original) The medical navigation system according to Claim 1 wherein the at least one software program controls navigation by employing a computational model of flexible device physics.

18. – 37. (Cancelled)

38. (Currently Amended) A medical navigation system for controlling the distal end of an elongate medical device in the body of the patient comprising:

an elongate flexible medical device;

a memory device provided with the flexible medical device that includes information on the physical and geometric properties including one or more cross-sectional areas of the elongate device and an elastic property of the elongate medical device that are relevant to navigational control of the device;

a control system for controlling the position and/or orientation of the distal end of the elongate medical device, where the one or more cross-sectional areas of the device, and the elastic property of the device are used in navigational control algorithms for guiding the device;

an interface for accepting inputs from the user to cause the control system to selectively change the position and/or orientation of the elongate medical device; the interface sending actuation instructions to the control system dependent in part upon the medical device's physical and geometric property information, including the one or more cross-sectional areas of the device, and the elastic property of the device obtained from the memory device, wherein the physical and geometric properties of the device are used in navigational control algorithms for guiding the device.

39. (Original) The medical navigation system according to claim 38 wherein the interface incorporates a software program that controls navigation by employing a computational model of flexible device physics.

40. (Original) The system according to claim 38 wherein the memory device includes storing unique device identification information for the elongate flexible medical device, and wherein the interface includes a database of unique device identification information and corresponding device properties, and wherein the instructions sent to the control system take into account the device properties determined from the database.

41. – 50. (Cancelled)

51. (Previously Presented) The medical navigational control system according to claim 50 wherein the information including physical and geometric properties of the device includes at least one of the length of one or more flexible segments of the device, one or more cross-sectional areas of the device, and an elastic property of the device.

52. (Currently Amended) ~~The medical navigational control system according to claim 38~~ A medical navigation system for controlling the distal end of an elongate medical device in the body of the patient comprising:

an elongate flexible medical device including at least one magnet;

a memory device provided with the flexible medical device that includes information on the physical and geometric properties of the elongate medical device that are relevant to navigational control of the device;

a control system for controlling the position and/or orientation of the distal end of the elongate medical device; wherein the control system is a magnetic navigation system for controlling an elongate medical device that further includes at least one magnet, and said information includes physical properties of the elongate medical device including at least a magnet dimension or a magnet type; and

an interface for accepting inputs from the user to cause the control system to selectively change the position and/or orientation of the elongate medical device; the interface sending actuation instructions to the control system dependent in part upon the medical device's physical and geometric property information including the magnet dimension or magnet type obtained from the memory device, wherein the physical and geometric properties of the device are used in navigational control algorithms for guiding the device.

53. (Cancelled)